

### REMARKS

Applicants have carefully reviewed and considered the Office Action mailed on October 18, 2007, and the reference cited therewith.

Claims 1-6 are canceled, and claims 7, 11, and 17 are amended. As a result, claims 7-22 are now pending in this application.

Specifically, claim 7 is amended to overcome the Examiner's rejection under 35 USC §101, and to better define the subject matter claimed. Claims 11 and 17 are also amended to better define the subject matter claimed.

It is submitted that support for amended claims 7, 11, and 17 is found in the application as originally filed, including the originally filed claims. For example for amended claim 7, paragraphs 0021-0026 of the present patent application describes that the compiler and linker are software systems run on a computer system, and that the optimizing analyzer and the optimization transformation module are within the compiler and linker respectively (see also Figure 1). Thus, it follows from this that the compilation environment is a computer-implemented compilation environment that includes a computer system, and that the optimizing analyzer and the optimization transformation module are also software run on the computer system. It is submitted that no new matter is introduced or added by this amendment to claim 7.

In addition and for amended claims 7, 11, and 17, it is submitted that paragraphs 0016-0017 and 0025 of the present patent application do describe that the optimizing analyzer does its job in generating the first and second optimization transformations and their satisfying conditions without the whole-program view data (i.e., information regarding other compiled codes) at compile-time, and only the optimization transformation module in the linker performs the

optimization transformation by selecting one of the first and second optimization transformations at link-time. It is submitted that no new matter is introduced or added by this amendment to claims 7, 11, and 17.

§ 101 Rejection of the Claims

Claims 1-10 were rejected under 35 USC §101 because the claimed invention is directed to non-statutory subject matter. The rejections state that these claims are directed to software but fail to provide a practical application. In addition, the rejections state that claim 7 claims a compilation environment, which is not considered a method, manufacture or composition of matter. The claim appears to be an attempt to claim a machine; however, nothing in the claim appears to refer to hardware components, which are expected to represent a machine.

As stated above, claims 1-6 have been canceled. Claim 7 been amended. It is submitted that claims 7-10, as amended, are patentable under 35 U.S. §101 for the following reasons.

With respect to the Examiner's rejection that claim 7 fails to recite hardware components, it is submitted that amended claim 7 is directed to a computer-implemented compilation environment which includes a computer system and software compiler and linker run on the computer system. This means that claim 7 is directed to physical modules (hardware and software) that perform physical and tangible operations. The operations performed by the compiler, the linker, the optimizing analyzer, and the optimization transformation module are all concrete, physical, useful, and tangible operations during compilation of the software program into native (i.e., machine) code (Emphasis Added) and for practical (and not abstract) application. The specification of the present patent application describes these operations in sufficient and enabling details.

Given that claims 8-10 depend from amended claim 7, it is submitted that amended claims 8-10 are also patentable under 35 U.S. § 101.

In view of the above-stated amendment to claims and arguments, it is submitted that claims 7-10, as amended, are patentable under 35 U.S. § 101. Claims 11-22, as amended, are not rejected under 35 U.S. § 101.

§102(e) Rejection of the Claims

Claims 1-22 were rejected under 35 USC § 102(e) as being anticipated by *Henry* (U.S. Pat. No. 7,000,227). In particular, the Examiner stated in part that *Henry*, at the title and abstract, col. 7, lines 4-33, and col. 5, lines 43-59, taught everything claimed in the independent claims 1, 7, 11, and 17 (see Office Action, pages 3-5).

As stated above, claims 7, 11, and 17 have been amended, claims 1-6 have been canceled. It is respectfully submitted that claims 7-22, as amended, are patentable under 35 USC § 102(e) in view of *Henry*.

Specifically, it is submitted that *Henry* does not render amended claim 7 unpatentable under 35 U.S.C. § 102(e). It is submitted that *Henry* does not disclose a compilation environment with a linker to link a compiled code compiled by a compiler of the compilation environment with other separately compiled codes.

On the contrary, *Henry* only discloses an optimizing compiler that performs optimization to just an intermediate language representation of a routine it has compiled (see *Henry* Fig 5, the Abstract, and the entire specification)(Emphasis Added). Nowhere in the entire written document does *Henry* refer to a linker, or the linking operation as claimed in amended claim 7.

It is submitted that *Henry* teaches away from the concept of a linker as it only deals with one compiled code (see *Henry* the Abstract).

In contrast, amended claim 7 states in part that

a software linker run on the computer system to link the compiled code with other separately compiled codes into an executable program.

(Amended claim 7)

In addition, it is submitted that *Henry* does not disclose an optimizing analyzer that generates a first optimizing transformation and a second optimizing transformation and their satisfying conditions for the compiled code without knowing information regarding the other separately compiled codes at compile-time. The optimizing analyzer claimed in amended claim 7 does not select which one of the optimization transformations is to be executed at link-time.

On the contrary, the compiler in *Henry* does perform optimization to the compiled code (see *Henry* the Abstract, Figure 5, col. 3, lines 45 to col. 4, lines 5, and col. 7, lines 4-34). Thus, *Henry* teaches away from the present invention claimed in amended claim 7 by disclosing that the compiler performs an optimization operation (selected from a sequence of optimization operations) repeatedly until a stop criterion is met, at which time the optimization is selected (see *Henry* Fig 5, the Abstract, and the entire specification).

In contrast, amended claim 7 states in part that

an optimizing analyzer within the compiler and also run on the computer system to generate a first optimizing transformation and a second optimizing transformation and their satisfying conditions for the compiled code without knowing information regarding the other separately compiled codes at compile-time.

(Amended claim 7)(Emphasis added).

In addition, it is submitted that *Henry* does not disclose an optimization transformation module within a linker that determines, at link-time and with knowledge of the information of

the other separately compiled codes, which of the first and second optimizing transformations should be selected when the compiled code is linked with the other compiled codes (Emphasis Added).

On the contrary and as stated above, *Henry* does not disclose a linker. In addition, *Henry* uses the compiler to perform optimization and the operation is performed (selected from a sequence of optimization operations) repeatedly until a stop criterion is met, at which time the optimization is selected (see *Henry* Fig 5, the Abstract, and the entire specification).

In contrast, amended claim 7 states in part that

an optimization transformation module within the linker  
and also run on the computer system to determine, at link-time and  
with knowledge of the information of the other separately  
compiled codes, which of the first and second optimizing  
transformations should be selected when the compiled code is  
linked with the other separately compiled codes, and to execute the  
selected one of the first and second optimizing transformations at  
link-time.

(Amended claim 7)(Emphasis added).

Given that claims 8-10 depend from amended claim 7, it is likewise submitted that claims 8-10 are also patentable under U.S.C. § 102(e) in view of *Henry*.

Likewise, given that amended claims 11 and 17 contain similar limitations found in amended claim 7 and that claims 12-16 and 18-22 depend from amended claims 11 and 17, respectively, it is submitted that these claims and their dependent claims are also patentable under U.S.C. § 102(e) in view of *Henry*.

In view of the above, it is submitted that the Examiner's rejections under 35 U.S.C. § 102(e) in view of *Henry* have been overcome.

AMENDMENT AND RESPONSE

Serial Number: 10/784,072

Filing Date: February 20, 2004

Title: METHOD AND SYSTEM FOR PERFORMING LINK-TIME CODE OPTIMIZATION WITHOUT ADDITIONAL CODE ANALYSIS

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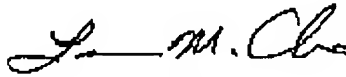
Conclusion

Applicants respectfully submit that the claims, as amended, are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (217-377-2500) to facilitate prosecution of this application.

Respectfully submitted,

Date February 19, 2008

By



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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 19th day of February, 2008.



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